18th CHRIS MEETING
Cairns, Australia, 25-29 September 2006

CONCLUSIONS OF THE IHO SEMINAR ON SPATIAL DATA INFRASTRUCTURES, ROSTOCK, GERMANY, 8-9 NOVEMBER 2005

I. Connecting HOs to national and international SDI projects: objectives, issues and recommendations for HOs and IHO

As a first step, HOs must define their role and their responsibility they are aiming for within the framework of SDI. This can only be done on the basis of the given respective national SDI and structure of national administration which may differ substantially from country to country. HOs in the national developments for the establishment of a SDI must consider generally:

- the structure of the national SDI, if there is room for a comprehensive marine SDI (MSDI), or only for a specialised hydrographic SDI (HSDI);
- the option for an HO to become responsible or partner in a national MSDI and the possible connection of MSDI to the national SDI (NSDI),
- whether the type of the data that need to be provided will be only those collected for the safety to navigation or something beyond;
- quality and usability of existing spatial data bases within the framework of the national SDI,
- the requirements of quality assurance,
- the national user requirements and how to establish them; possibly necessary restrictions on data access,
- the financial, technical, and administrative impact; costs and national policy on cost recovery for the establishment and maintenance of the MSDI.

If the IHO will co-ordinate the activities of the HOs in developing and maintaining MSDIs, the impact that this will have in the Organization from the financial, technical and administrative point of view must be considered. It must raise awareness of the benefit of MSDIs within IHO membership, and also examine the needs and provide Capacity Building support to requests from Member States.

IHO will also have to determine its role within the framework of an evolving global SDI (GSDI).

II. Technical considerations

S100, formerly known as S57 ed 4, as a general marine spatial data standard compatible with the ISO 19000 suite of geospatial data standards should play a key role for IHO and HOs in any MSDI. It also has considerable potential for user communities beyond hydrography such as scientific oceanography, as well as land topographic applications. Therefore, S100 should be promoted by HOs to the national land geodata and the deep ocean communities, and feedback from potential national users outside HOs should be obtained and forwarded to the respective IHO bodies concerned.

While IHO has already established a long-term time schedule for migrating from S57 to S100, attention must be paid to the “legacy” data bases based on S57 (ed 3.1 and 3.1.1) both at HOs and particularly on the numerous ECDISes at sea. Therefore, Industry (e.g., software producers and ECDIS manufacturers) should be kept closely involved by IHO with

regard to the migration path towards S100 in order to ensure a timely transition both for HOs as data producers/providers, and ECDIS users and other hydrographic data user communities.

Within the SDI, compatibility of data in terms of geodetic reference must be ensured an as a prerequisite for making use of the data within as wide range of applications as possible. The precise and complete recording of geodetic parameters used is therefore necessary. In particular, when creating an IHO profile of the ISO metadata standard 19115 the requirements of a wider user community, e.g. marine science, should be taken into account. For example, when data sets are derived from other data sets, geodetic transformation parameters used, if any, should be stored with the metadata.

An often difficult problem is posed by the vertical reference of hydrographic data data sets. HOs should strive for establishing the relation between the chart datum surface (LAT), where relevant, and the ellipsoid, in order to ensure consistent and continuous vertical reference of depth data.

Generally, HOs should be aware that involving with SDI may mean that their role gradually may extend from a producer of certain products to custodians of data. They should consider the possible implications on the requirements of data management and data quality maintenance and control.

III. Applications of Spatial Hydrographic Data

HO's are the "centres of expertise" in hydrographic matters and as such will be expected to fulfil certain criteria in the ingestion, management and dissemination of data.

In order to improve awareness and understanding in hydrographic data and promote the greater use and dissemination of this information, it is proposed that IHO Member States adopt a more proactive approach in the development of national spatial data infrastructures (SDI).

The SDI framework proposed should comprise the following components:

- Hydrographic database and warehouse capability
- Develop and maintain a robust geodetic framework
- Adoption of relevant standards for capture, management and delivery of data
- Attain agreed levels of competency in the management of data in their organisations
- Adopt a customer focused approach

The following lists a number of general points to be considered by HOs.

There are many existing and emergent uses for hydrographic data outside of navigation which HO's need to consider. They include:

- Habitats management
- Coastal Management and defence
- Renewable Energy development
- Offshore exploration and aggregates extraction
- Insurance
- Disaster Management/ emergency response
- Sovereignty & Defence

- Estates management
- Ocean Research
- Recreation and tourism
- Freshwater resource management
- Marine engineering works and services
- Fisheries

In order to fulfil their role in supporting their national SDI, “core” thematic data sets could include:

- Chart data
- Rich bathymetry (grid & contoured)
- Seabed sediments classification
- Wrecks & seabed obstructions
- Restricted and regulated areas (e.g.PEXA, marine Conservation)
- Tidal and currents data
- Maritime limits
- Historical and archaeological information

In order to make this happen, HO’s are encouraged to maximise the use of hydrographic data by developing relevant distribution mechanisms. They should also manage hydrographic data for the generation of products and delivery of services beyond the core business of navigational charting.

At the technical level, this would include the storage (including the encoding of features and attributes representing real world objects at source survey resolution irrespective of the scale at which the information may be displayed on navigational products.

In order to maximise the potential for data dissemination, HO’s should be encouraged to develop seamless vector databases to support integration of hydrographic data into the wider sphere of national and international geospatial data infrastructures.

If individual HO’s are unable to meet the requirements or choose to adopt a different approach, they are free to consider arranging for other national organisation(s) to act on their behalf.

It is proposed that CHRIS will undertake to move this forward to advise and support IHO members in achieving their objectives. Specific actions will include:

- Define customer/ client needs
- Define core data held by HO’s
- Create a framework for SDI’s
- Define strategies and mechanisms for implementation of SDI
- Develop a communications plan for both internal and external stakeholders